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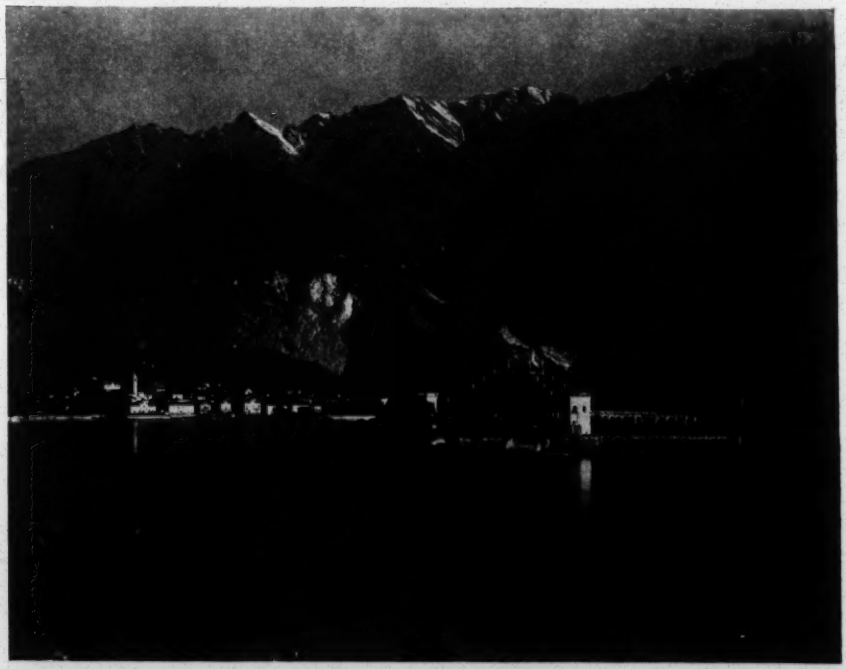

Photo by Arthur E. Mayer

ISOLA BELLA FROM STRESA

Set in the blue waters of Lake Maggiore and shadowed by the Alps, this Italian islet was scene of the recent conference between Italy, France, and Great Britain. The old Borromeo Palace, hidden by luxuriant gardens, was a favorite retreat of Napoleon (see Bulletin No. 1).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Stresa, Italian Resort Town, Redecorated for Conference

WHEN British and French diplomats arrived in Stresa, Italy, recently, to confer with Premier Mussolini about German rearmament, they were welcomed by a brand new town. The Italian leader had the little city renovated, its railway station rebuilt, and its main street paved in honor of the occasion.

Stresa has about 2,000 inhabitants. It rises from the western shore of Lake Maggiore about three miles south of Pallanza.

Lake Maggiore seems a lodestone for conferences. Ten years ago representatives of the chief countries engaged in the World War met in a town at the Swiss end of this same lake to draw up the famous Pact of Locarno.

A Favorite Italian Summer Resort

Located almost 700 feet above sea level, at a particularly breezy place on the lake, Stresa is cooler in summer than most of the near-by villages. Railway trains and steamers bring throngs of travelers to rest in its palatial hotels and villas, to listen to band concerts, and to stroll along the quay, watching regattas and fishing boats. The lapping of sunny water on stone, and the rhythmic dip of oars, mark the tranquil tempo of existence in Stresa.

Among Stresa's attractions for tourists is a cogwheel railway leading up the grassy slopes of near-by Mt. Mottarone. From the mountain top, 4,892 feet above sea level, can be seen splendid vistas of snow-capped Alps, and at least six lakes. On clear days, the Cathedral of Milan looms up out of the Lombardy plain.

Along the lake shore south of Stresa, small villages cluster around tiny harbors; vine-clad villas are spilled like pink, blue, white or yellow mints in the midst of gardens blazing with color.

Lake Maggiore, with an area of about 82 square miles, is Italy's second largest lake. The upper fifth of it lies in Switzerland, the remaining four-fifths in Italy. At the north end of the lake, into which pour floods of melted snow and ice from the Alps, the water is green. Toward the south, the lake becomes bluer, until, in the roadstead of Stresa, skimmed by fishing boats and rowboats arched over with gay awnings, the water is turquoise and sapphire.

Isola Bella, Where Napoleon Shed His Worries

Like four emeralds set in the blue, the Borromean Islands rise from the lake near Stresa. They are named for the noble, ancient Borromeo family, to which three of them have belonged for centuries. Isola San Giovanni, nearest the mainland, is the smallest. Isola Madre, the largest, was the first of these islands to be planted with luxurious vegetation by the Counts of Borromeo. To-day, its villa crowns a garden rising up in five terraces, where white peacocks wander among orange and lemon trees.

Most famous of the islands is Isola Bella, within easy rowing distance of Stresa. Until 1650 the island, except for a few buildings, was a barren rock. To Count Vitaliano Borromeo, artist as well as warrior and diplomat, goes the credit of converting it into a world-renowned beauty spot. In soil brought from the mainland, he planted an amazing array of subtropical trees and flowers, creating a garden of ten terraces. The lowest rests on piles driven in the lake bottom. The highest rises 100 feet above the lake.

Isola Bella has been praised by Dumas and Wagner. Wearied by cares of

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SAN FRANCISCO OFFICE .....OPENED JULY 15, 1853
WELLS FARGO & CO.. BANKING & EXPRESS...
KEY TO MAP
WELLS FARGO BUILDINGS STILL STANDING
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THIS YEAR WELLS FARGO BANK & UNION TRUST CO. ENTERS ITS 78th YEAR OF CONTINUOUS BANKING SERVICE
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SAN FRANCISCO IN THE DAYS OF THE PONY EXPRESS—A STREET SCENE REPRODUCED IN MINIATURE

During gold rush years Wells Fargo was the major banking and express company in the west. Two years before the Pony Express, Wells Fargo organized the Overland Mail Company, a stage coach service for mail, express, and passengers from St. Louis through the southwest to Los Angeles and San Francisco. When the Pony Express failed, the Overland Mail was transferred to the central route and operated between St. Joseph and Sacramento until the last spike was driven in the Union Pacific Railroad (see Bulletin No. 5).

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The Ivory Coast Sells Mahogany and Cacao Instead of Ivory

ABIDJAN, the new capital of the Ivory Coast, is rapidly becoming a metropolis, complete with white villas, shaded parks, a fine governmental palace, and a gay beach resort. Government headquarters were recently moved to Abidjan from Bingerville.

The Ivory Coast is a large block of French territory, lying along the Gulf of Guinea, where the Atlantic coast of Africa runs east and west, a few degrees north of the Equator.

Not a single deep-water harbor cuts into the 380 miles of coast. Long sand bars, backed by shallow lagoons, stretch in an unbroken line from Cape Palmas eastward to Cape Three Points on the Gold Coast. Grand Bassam and Port Bouet, chief ports of the Ivory Coast, are built on these outlying sand bars. Opposite them, across the lagoon on the mainland, are Bingerville and Abidjan.

Bridge Connects Capital with Sea

Port Bouet marks the southern terminus of the colony's single railroad, which runs due north for over 475 miles, and is to be extended to connect with the Senegal-Niger and the Guinea lines. A recently completed pontoon bridge carries railroad and highway across the lagoon from the capital to the sea. Previously all produce brought down by rail from the interior had to be unloaded at Abidjan, transshipped by lighter to Grand Bassam, wheeled across the sand, then loaded into whale boats for the mile trip out to the steamers lying off shore.

As yet the resources of the Ivory Coast have been only partially developed. The name dates from the fifteenth century, when French sailors brought back the first rich cargoes of ivory to the markets of Dieppe.

For centuries West Africa remained a coast to be plundered rather than a territory to be colonized. The names marked on old charts point to the sources of many a sea captain's fortune. There was the Slave Coast, the Gold Coast, the Ivory Coast, and the Grain Coast—grain in this case being Liberian pepper. Africa became a grab bag for the nations of Europe. By the eighteenth century England, the Netherlands, Portugal, and France had established special rights over various sections of the coast. The first permanent French trading stations appeared on the Ivory Coast early in the nineteenth century.

When the supply of ivory was exhausted mahogany took its place. One-third of the colony is covered by thick tropical rain forest which spreads over the flat coastal plains. Giant mahoganies and cottonwoods roof a dense tangle of undergrowth matted with vines and dripping moss.

Mahogany's Long Road to Market

Rivers of the Ivory Coast are seldom navigable, but in the rainy season rafts of heavy mahogany logs can be floated down to the lagoons and towed out to Grand Bassam, where small trucks on rails carry them across the narrow sand bars to the ocean wharf. There they are launched in the heavy, Atlantic surf, rafted together once more, and towed out to the waiting steamers.

Until a deep-sea harbor is constructed this long process of handling and rehandling must go on. Inland transportation is much more efficient, owing to railway, automobiles, and 3,500 miles of surfaced roads.

Since the collapse of the mahogany market the residents of the Ivory Coast have concentrated their interests on cacao. The steamy climate and the forest clearings left by mahogany cutters are ideal for a plant that needs high humidity and some shade. The natives have made a success of the industry, partly because it requires so little labor. All they need to do is to plant the seedlings provided by their Department of Agriculture, grub out brush and weeds occasionally, and wait five years for the first crop to mature. Other exports of some importance from the Ivory Coast are palm kernels, palm oil, coffee, cabinet woods, and cotton.

Ivory Coast Also Has "Forgotten Man"

The Ivory Coast is one of eight colonies forming the Federation of French West Africa (A.O.F.). A Governor-General at Dakar, the federal capital, administers this vast colonial empire with the aid of a Lieutenant-Governor in each colony.

Proposal to change the local capital from Bingerville to Abidjan uncovered the story of another forgotten man. Bingerville was named for Captain Louis Gustave Binger, who

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state, Napoleon fled here to rest and enjoy family life. Down paths where Napoleon strolled with Josephine, tourists now wander from terrace to terrace, among fragrant cedars and magnolias, cork and camphor trees. Stately cypresses form a backdrop for blossoming oleanders and camellias, orange and lemon trees, and exotic plants.

Lavish as the gardens is the island's partly unfinished villa, known as Borromeo Palace. In its palatial rooms, hung with seventeenth century Flemish tapestries, and filled with costly furniture, cardinals and princes have feasted, literati and ambassadors have listened to concerts and theatrical performances. It is in this villa that meetings were held during the recent conference.

Note: Students interested in Northern Italy and the Italian lakes should consult "The Perennial Geographer," *National Geographic Magazine*, October, 1930; "Man and Nature Paint Italian Scenes in Prodigal Colors," April, 1928; "Under Radiant Italian Skies," August, 1926; "Italy, Land of History and Romance," April, 1924; "Geography and Some Explorers," March, 1924; "Frontier Cities of Italy," June, 1915; and "Austro-Italian Mountain Frontiers," April, 1915.

Photo by Emil P. Albrecht

WASHDAY ON THE SHORE OF LAKE MAGGIORE

Glacier water, a good flat rock, a paddle, and plenty of soap are all that a Stresa laundress requires. Maggiore, Italy's second largest lake, is four-fifths Italian and one-fifth Swiss. Isola Bella lies in the distance.

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Instruments Hung from Brackets in Newest Stratosphere Cabin

THE newest chapter in one of science's newest fields of endeavor, stratosphere exploration, is being written at Dayton, Ohio. There at Wright Field, development ground of the Army Air Corps, the roomiest gondola yet built to carry men and instruments into the thin, unbreathable upper atmosphere is being groomed for its journey.

Lifted by the largest balloon ever constructed—a huge 3,700,000 cubic-foot bag—the gondola will be the vehicle for two men and more than a ton of apparatus to be sent up from the Black Hills of South Dakota next June under the joint auspices of the National Geographic Society and the Army Air Corps. Captain Albert W. Stevens will be in command of the flight and in charge of the scientific work; and Captain Orvil A. Anderson will be the pilot.

Room Inside for a Dinner Party

The gondola, a nine-foot metal ball, half white and half black, has been set up in a machine shop; and every day, under the supervision of Captain Stevens, mechanics and scientists work on its glistening shell, inside and outside, making the dozens of openings that are needed for electric wires and air ducts, fitting the glass covers of portholes, and installing strange instruments and the scores of devices that must be used to operate them.

Eight gondolas have preceded this one into the stratosphere, and from nearly all of them have come lessons that are being used in equipping this latest model. The sphere is made of Dowmetal, a magnesium alloy, lighter than aluminum, its shell only three-sixteenths of an inch thick. But it is extremely strong and has successfully stood severe tests. In one it was filled with water and partly lifted, thus being subjected to strains five times greater than those it will receive during flight.

Inside the gondola, across the bottom, extends a floor, also of metal, six feet, eight inches across. This level space is so large that on it one could set up an ordinary dinner table and seat eight persons comfortably around it.

This year there will be no general system of shelves against the walls. Instruments are being hung whenever possible from knobs and brackets on the walls, and when necessary shelves are being built for the heavier pieces of apparatus.

Ballast Carried Outside Gondola

The most striking difference that will be made in the gondola's equipment this year is not yet apparent. In so far as the carrying of the heavier weights is concerned, the gondola will, in effect, be turned wrong side out. Nearly a dozen storage batteries, like those that were carried last year on shelves inside the metal ball, will hang this time in insulated boxes from brackets attached to the lower portion of the outside of the shell. Each will be attached to its bracket by a simple releasing mechanism that can be operated from inside the gondola.

In a bag, on top of each battery box will be folded a parachute, attached to the box. When the box is released, the parachute will be pulled open, and the heavy object will float harmlessly to earth. The batteries will be dropped as ballast on the way down, when they are no longer needed.

Also outside the gondola, just above the bottom line, will hang canvas bags of extremely fine lead shot each like the weight from a huge clock. There will be 40 of these bags, each holding from 150 to 200 pounds of ballast—a total of 6,500 pounds. In the heart of each sack, cushioned by the shot, a dynamite cap will be buried with wires leading to it. By an ingenious electrical firing device, which can be operated either from inside the gondola or from its deck, the bottom of any one or all of the sacks can be opened and the ballast discharged instantaneously.

The plan to carry ballast supplies on the outside of the gondola is the fruit of the four years' experience in stratosphere exploration since Professor Auguste Piccard made the first ascent in an air-tight gondola. The desirability of having the ballast where it can be discharged quickly was demonstrated last July during the flight of the *Explorer I.*

The carrying of lead and sand ballast outside and their release by electrically fired explosions was proved to be practicable three months later by Dr. Jean Piccard and Mrs. Piccard. Adding the batteries to the lead ballast on the outside for the approaching flight gives a still greater safety factor.

Gondola Equipped with Radio Instruments

Fewer, and in part different types of openings have been made in the new gondola. The observation portholes are five inches in diameter instead of four. One, in the top of the sphere, will make it possible to watch the behavior of the balloon. Three of the observation windows

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explored the interior of the Ivory Coast in 1888 and 1892, and 1893 was made the first governor of the new colony. He is generally credited with winning the whole territory for France, but this is slightly inaccurate. There was another, Marcel Treich-Laplène, who prepared the way for Binger's success; and it was even suggested that the new capital should be renamed Treichville in his honor.

First Explored by Treich-Laplène

Treich-Laplène was sent to the Ivory Coast in the early eighties as representative for a French trading company. At that time the English were trying to extend their influence westward from the Gold Coast. Treich-Laplène realized that the only way to forestall them was to reach the interior first and induce the local chieftains to sign treaties guaranteeing peaceful relations with France.

In 1887, therefore, he set out for the north through country no white man had ever seen. The treaties he concluded on this trip secured the sourthern part of the colony for France. The following year when Binger, travelling south from the Niger, reached Kong in the northern part of the colony, Treich-Laplène was waiting for him. More treaties were negotiated, then he conducted Binger south to Grand Bassam. Treich-Laplène died of fever two years later, at the age of thirty; but his treaties with the natives were the basis for the Franco-British Convention of 1891 that established the boundary between the Gold Coast and the Ivory Coast.

Note: For material on French West Africa see also "Three-Wheeling Through Africa," *National Geographic Magazine*, January, 1934; "Sindbads of Science," July, 1927; and "Timbuktu, in the Sands of the Sahara," January, 1924.

Bulletin No. 2, April 29, 1935.

Photograph by George Finley Simmons

DAKAR IS THE CAPITAL OF FRENCH WEST AFRICA

The eight colonies of French West Africa, including the Ivory Coast, are administered by a Governor-General residing at Dakar. This Senegal seaport is a favorite jumping-off place for South Atlantic flights.

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The Buttercup, Eve of the Flower Family

"APRIL showers bring May flowers!"

Again the miracle of Spring spreads its mantle of loveliness over hill, dale, and meadow. In many places flower festivals, akin to the celebrations of ancient times, welcome the vernal season.

Although a flower may appear to be the freshest, newest thing on earth, it is really the mature product of long evolution. Botanists tell us that the thousand and one different forms of blossoms all spring from one original flower, and the Eve of this magnificently varied race is the simple little buttercup.

Which Were the First Flowers?

When one asks which were the first flowers and hence the oldest, the answer is, those that are least skillful in securing the transfer of pollen and in the making of seeds; for in the world of flowers, as in the field of human industry, efficiency wins and archaic methods mark no progress.

A large number of stamens (see illustration, next page), means a high charge for transport in terms of pollen eaten or wasted, and a large number of pistils means that many of them will fail of pollination.

By these tests of flower economy we find that the buttercup order, including buttercups, anemones, larkspurs, magnolias, etc., are the primitives of the floral world, and the snapdragons, lobelias, and orchids the most highly specialized.

For a long time the buttercups must have remained uncertain as to the best plan for their blossoms. The calyx and corolla were the first to know their own mind and to settle upon their make-up. We see the vast majority of their descendant species fixing on five, four, or three sepals for the calyx, and the same numbers of petals for their corollas.

Climb of Buttercups to Lilyhood

Progress was slower in the reduction of the number of stamens and pistils, and all of the members of the buttercup order, except a few highly specialized ones, have large numbers of both.

Presently the buttercups began to find their nectar diluted by rain and stolen by worthless marauders. A scale was provided as a roof for the nectar well, and later the petal itself became a nectar sack, as we may see in the columbines, larkspurs, and monkshoods.

Many flowers that made no bid for bee and butterfly patronage abolished nectaries and petals entirely. The wind could not be lured by color or sweets. By hanging their anthers on long threads and making their stigmas plumelike, the pollen would be lifted away from the maturing anther by passing breezes and caught in the plumed stigma as it was carried by.

Though the conversion of buttercups into lilies must have taken generations marked by changes, the actual number of steps by which this was wrought was not many. Indeed, the most striking characteristic of the flower of the lily, three petals and three sepals, even to-day is seen in some of the buttercups.

Note: Botany classes will find accurate descriptions and beautiful color portraits of many plants and flowers in "Some Odd Pages from the Annals of the Tulip," *National Geographic Magazine*, September, 1933; "California, Our Lady of Flowers," June, 1929; "Family Tree of the Flowers" and "Wild Flowers of the West," May, 1927; "Canyons and Cacti of the American Southwest," September, 1925; "Pages from the Floral Life of America," July, 1925; "Familiar Grasses and Their Flowers," June, 1921; "Exploring the Mysteries of Plant Life," June, 1924;

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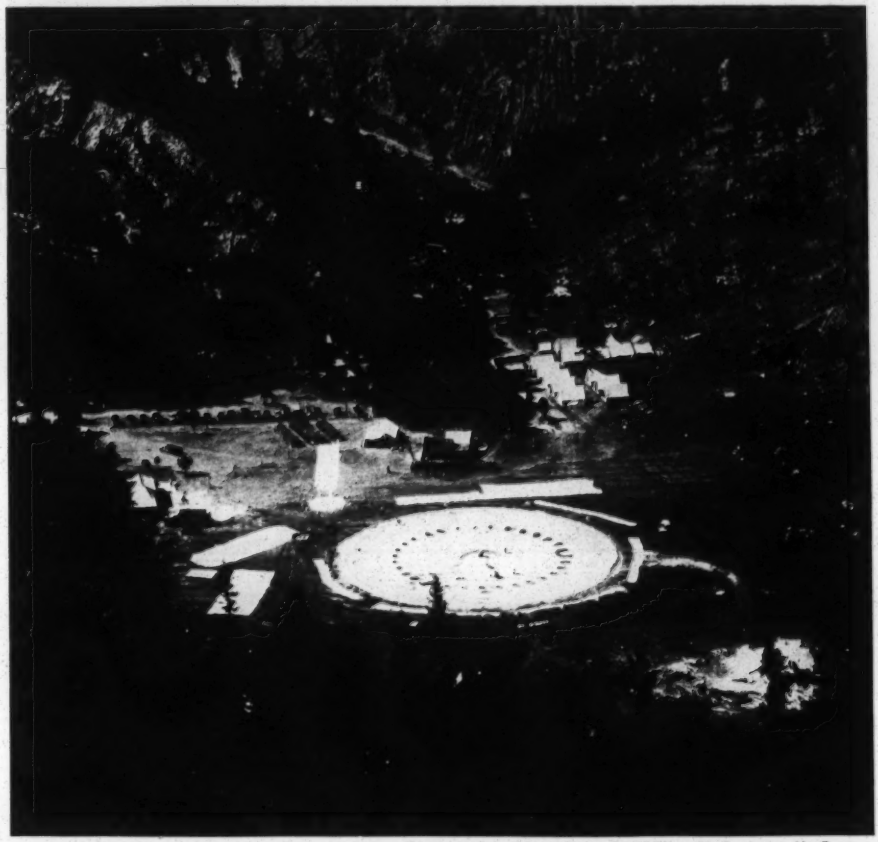
will be spaced about the upper half below the attachment ring; one will face downward at an angle; and one, near the floor level, will permit the navigator to look straight down to the earth. The opening in the bottom point of the gondola is reserved for the lens of a large aërial camera which will take photographs of the earth straight downward every minute and a half.

Three openings about an inch in diameter in the side of the gondola, two above the equator and one below, will provide the vital radio connections through which the flyers will keep in constant contact with the earth by voice. From them the sending aërial and the receiving antenna will extend. Both the transmitting and receiving equipment have been furnished by the National Broadcasting Company, and its nation-wide system will be used to broadcast the comments of the flyers from the gondola next June as they float 12 or 14 miles above the earth.

Note: For illustrated accounts of stratosphere exploration see "The Society Announces New Stratosphere Flight," *National Geographic Magazine*, February, 1935; "Exploring the Stratosphere," October, 1934; "World's Largest Free Balloon to Explore Stratosphere," July, 1934; "The Geographic's Stratosphere Expedition," April, 1934; "Ballooning in the Stratosphere," March, 1933; and "Exploring the Earth's Stratosphere," December, 1926.

See also in the GEOGRAPHIC NEWS BULLETINS: "Largest Gondola for Stratosphere Flight Completed," week of April 15, 1935; "Helium To Lift New Stratosphere Balloon," week of February 4, 1935; "To Repeat Stratosphere Flight from Black Hills," week of January 7, 1935; and "Stratosphere Flight Yields Valuable Data," week of October 1, 1934.

Bulletin No. 3, April 29, 1935.



Photograph by Lieut. James F. Phillips, U. S. Army Air Corps

SCENE OF THE SOCIETY'S NEXT STRATOSPHERE FLIGHT

The expedition plans to use the same sheltered bowl in the Black Hills of South Dakota that was chosen for last year's take-off. In the foreground is the thick sawdust ring that cushions the huge bag when it is spread out for inflation. This photograph was taken during preparations for the 1934 flight.

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Seventy-fifth Anniversary of the Pony Express

SEVENTY-FIVE years ago this month the Pony Express made its first record-breaking trip between Missouri and California. Modern aviation has cut the sensational ten days to as many hours, but the story of that first daring achievement has lost none of its glamour.

By 1860 the outside edges of the continent had been colonized and white men's activities penetrated inland from the east as far as the Missouri River. But between "Saint Joe" (Saint Joseph, Missouri) and San Francisco lay a forbidding 1,966-mile expanse—Indian infested plains of Kansas and Nebraska, mountains of Colorado and Wyoming, and deserts of Utah and Nevada. At that time, men generally linked the two jagged edges of the nation by a circuitous 28-day route—sailing from New York to Panama, traveling by mule train across the isthmus, then taking ship to San Francisco.

Twenty Miles an Hour

But the nation was growing. Men in the west sought closer contact with those in the east. So was born the Pony Express to brave the wilds of the direct route, St. Joseph to San Francisco.

On April 3, 1860, all was ready for a simultaneous start from the two ends of the line. From the east into St. Joseph puffed a railway train bearing special mail bags from New York. A waiting rider transferred them to his saddle and sped away to the west. For ten days and nights thereafter, horses' hoofs pounded constantly over the trail—now quietly in soft sands, now clattering across stony mountain passes, now echoing through deep canyons—until the mail arrived in San Francisco. It was done in a little over ten days. The next trip took two weeks, but later several trips were made in nine days.

That same April 3, mail from San Francisco started eastward, going to Sacramento by boat. There a daring rider tightened his saddle girths, strapped on the pouches, and was off. He covered the first 20 miles in 59 minutes, traveled 55 miles farther and relayed the bags to a waiting rider. The second rode past the summit of the Sierra Nevadas, where the next man took up the ride. The first three men covered a total distance of 185 miles, part of which was through 30 feet of snow; they did it in 15 hours and 20 minutes! From there five others followed one another, galloping through Ruby Valley, Deep Creek Valley, Rush Valley, and Camp Floyd to Salt Lake City. Eastward from the Mormon settlement the mail was hurried to Saint Joseph, where the town went wild with excitement over the successful undertaking.

Five Dollars per Letter

Incredible as it may seem, the quickest time ever made by the Pony Express was in winter weather. The document transmitted was President Lincoln's inaugural message of March 4, 1861. It was borne over 2,000 miles in seven days and 17 hours, said to be the fastest long distance horseback riding ever done.

To maintain the speed of nearly 250 miles a day, there could be no excess weight carried. Preference was given to riders light as jockeys whose endurance and bravery were unquestioned. Their pouches were small, a bundle containing hundreds of communications often being no larger than an ordinary writing pad. Each letter was written on the thinnest tissue paper—and for its transportation across the continent, five dollars was paid in advance. The large newspapers of the country furnished much of the business.

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"Midsummer Wild Flowers," July, 1922; "Our State Flowers," July, 1917; "Common American Wild Flowers," June, 1916; and "American Wild Flowers," May, 1915.

See also "The Book of Wild Flowers" published by the National Geographic Society.

Bulletin No. 4, April 29, 1935.

Drawing by Charles E. Riddiford

Every flower in the world is a combination of the same four standard parts—stamens which produce the fertilizing pollen; pistils which receive it to fertilize the seed; petals which form the corolla; and sepals which make the protective calyx. Variations in these basic essentials explain the history of flower development from the simple buttercup to the complex lily and orchid.

"Buffalo Bill" Cody made the longest ride recorded by the Pony Express. He had ridden 76 miles over his own run, only to find that the man who should have relieved him had been killed the night before. The station master urged Cody to ride the vacant route. It was an 85-mile stretch, across dangerous territory, but he did it, making every station on time. With but a moment's rest on reaching the final post, he took the return pouch and started back to his initial station. He made the round trip of 322 miles on scheduled time. A week later, Indians killed one of the station masters on Cody's route and stole all the horses. When "Buffalo Bill" arrived, there was no change of mount, and, pursued by redskins most of the way, he had to ride his panting horse at top speed 12 miles to the next station.

Over this route history was both carried and made for nearly a year and a half, until the telegraph was finally stretched from coast to coast on October 24, 1861. The Pony Express required nearly 500 horses, 190 stations, 200 men to care for the stations and 80 daring riders.

Note: Some of the States through which mail was transported by the Pony Express are described in the following: "Nature's Scenic Marvels of the West," *National Geographic Magazine*, July, 1933; "Flying," May, 1933; "Colorado, A Barrier That Became a Goal," July, 1932; "Out in San Francisco," April, 1932; "The Santa Fe Trail, Path to Empire," August, 1929; "Trailing History down the Big Muddy," July, 1928; "Seeing America with Lindbergh," January, 1928; "Missouri, Mother of the West," April, 1923; "Encircling Navajo Mountain with a Pack Train (Utah)," February, 1923; and "A Mind's-Eye Map of America," June, 1920.

Bulletin No. 5, April 29, 1935.

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A SUBSTITUTE FOR SADDLEBAGS AND SWIFT PONIES

Huge tri-motored planes skim over the trails blazed by the Pony Express. Here at the Kansas City Municipal Airport a ton of Christmas mail is being loaded. Transcontinental and Western Air maintains a daily service between New York and Los Angeles, making the westbound trip in 18 hours and the eastbound in 15 and a quarter.